

Abstract of the Disclosure

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**METHODS FOR ALIGNING
A SURFACE OF AN ACTIVE RETAINER RING WITH A WAFER
SURFACE FOR CHEMICAL MECHANICAL POLISHING**

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CMP methods reduce a cause of differences between an edge profile of a chemical mechanical polished edge of a wafer and a center profile of a chemical mechanical polished central portion of the wafer within the edge. The wafer is mounted on a carrier surface of a wafer carrier so that a wafer axis of rotation is gimbaled for universal movement relative to a spindle axis of rotation of a wafer spindle. An operation using a retainer ring limits wafer movement on the carrier surface perpendicular to the wafer axis. Another operation limits a direction of permitted movement between the wafer carrier and the retainer ring to only movement parallel to the wafer axis, so that a wafer plane and a retainer ring may be co-planar.

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